AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended): A method of determining the relative position of a mobile in relation to the known position of a reference station, each using an antenna for receiving radio signals originating from an arrangement of positioning satellites transmitting on at least two frequencies L1 and L2, this method comprising the steps of :

- periodically determining, for each of said frequencies, of a set of 2p pseudo-ranges, for p pseudo-ranges between the mobile and the p satellites and p pseudo-ranges between the reference station and the p satellites,

- supplying of the pseudo-ranges to a position-calculating unit, and

- calculating by the position–calculating unit of a relative position of the mobile in relation to the reference station based on the pseudo-ranges and on an estimated position Pe of the mobile in relation to the reference station, ~~wherein~~ and, for a given set of 4p pseudo-ranges received by the position–calculating unit, calculating ~~of the~~ the relative position, comprising the following steps:

- a) choosing a linear combination equation aL1+bL2 of said frequencies L1 and L2 froma predetermined list having at least two linear combinations equation of frequencies,

- b) calculating linear combinations of pseudo-ranges corresponding to the chosen linear combination equation, and, on the basis of these linear combinations of pseudo-ranges and the estimated position Pe, calculating a precise relative position Pp of the mobile in relation to the reference station,

- c) choosing from the list the following linear combination equation, ~~if it exists, and, in this case, reiterating step b),~~ setting the estimated position Pe ~~as~~ to be a new estimated position Pe equal to said precise position Pp, and reiterating steps b) by calculating new linear combination equation using the same set of 4p pseudo-ranges and, on the basis of the new linear combination of pseudo-ranges and the new estimated position Pe, ~~to obtain~~ obtaining an even more precise relative position,

- d) reiterating step c) for all the linear combination equations in the list.

2. (Previously Presented): The method according to claim 1, wherein the linear combination equations in the list are determined in such a way that, from one calculation to the next, the corresponding wavelengths reduce progressively and the sensitivity to ionospheric errors also reduces progressively.

3. (Previously Presented): The method according to claim 1, wherein the first combination equation in the list is the combination equation L1-L2 (a=1, b=-1) and/or the last linear combination equation in the list is the combination equation 9L1-7L2 (a=9, b=-7), L1 and L2 being the transmission frequencies of the satellites of the GPS system.

4. (Currently Amended): The method according to claim 1, wherein the intermediate combination equations are ~~preferably~~ as follows: 2L1-L2 (a=2, b=-1); 3L1-2L2 (a=3, b=-2); 4L2-3L1 (a=4, b=-3).

5. (Previously Presented): The method according to preceding claim 1, wherein step b) comprises the following two steps:

b1) calculating an approximate relative position Pa of the mobile in relation to the reference station on the basis of the chosen linear combination equation, Pe and a subset of 4p' pseudo-ranges corresponding to p' satellites, where p' is less than p and where the p' satellites chosen from the arrangement of p satellites are those which, taking into account the current geometry of the arrangement, are least sensitive to an error in the estimated position.

b2) calculating a precise relative position Pp of the mobile in relation to the reference station on the basis of said linear combination of Pa and the complete set of 4p pseudo-ranges.

6. (Previously Presented): The method according to claim 1, wherein the steps b1) and b2) are only carried out for the first linear combination equations in the list, a single step involving the 4p pseudo-ranges being carried out for the other linear combination equations in the list.

7. (Previously Presented): The method according to claim 1, wherein the 2p pseudo-ranges between the satellites and the reference station are determined by the reference station and sent by radio to the mobile which then comprises reception means to receive these pseudo-ranges and information for dating the measurement of these pseudo-ranges.

8. (Currently Amended): A device for determining the position of a mobile in relation to a reference station, comprising:

- means for receiving satellite positioning signals;

- means for receiving a set of 2p pseudo-ranges transmitted by the reference station and representing the pseudo-ranges between the reference station and p satellites for two different carrier frequencies L1 and L2,

- means for periodic determination of a set of 2p pseudo-ranges between the mobile and the p satellites,

- means for supplying the 4p pseudo-ranges to a position-calculating unit,

- means for storing a list of linear combination equations of the frequencies of the positioning signal carriers, and

- means for carrying out, on the basis of the same set of 4p pseudo-ranges, successive calculations of the relative position of the mobile in relation to the position of the reference station, each time based on a different linear combination equation of frequencies chosen from the list, an estimated position Pe and the set of 4p pseudo-ranges, and when the chosen linear combination equation is different from the first linear combination equation in the list, the estimated position Pe ~~estimated in a calculation with a given linear combination equation from the list~~ being set as the relative position calculated in the preceding successive calculation on the basis of the preceding linear combination equation from the list.

9. (Previously Presented): The method according to claim 2, wherein the first combination equation in the list is the combination equation L1-L2 (a=1, b=-1) and/or the last linear combination equation in the list is the combination equation 9L1-7L2 (a=9, b=-7), L1 and L2 being the transmission frequencies of the satellites of the GPS system.

10. (Currently Amended): The method according to claim 2, wherein the intermediate combination equations are ~~preferably~~ as follows: 2L1-L2 (a=2, b=-1); 3L1-2L2 (a=3, b=-2); 4L2-3L1 (a=4, b=-3).

11. (Currently Amended): The method according to claim 3, wherein the intermediate combination equations are ~~preferably~~ as follows: 2L1-L2 (a=2, b=-1); 3L1-2L2 (a=3, b=-2); 4L2-3L1 (a=4, b=-3).

12. (Previously Presented): The method according to preceding claim 2, wherein step b) comprises the following two steps: b1) calculating an approximate relative position Pa of the mobile in relation to the reference station on the basis of the chosen linear combination equation, Pe and a subset of 4p' pseudo-ranges corresponding to p' satellites, where p' is less than p and where the p' satellites chosen from the arrangement of p satellites are those which, taking into account the current geometry of the arrangement, are least sensitive to an error in the estimated position. b2) calculating a precise relative position Pp of the mobile in relation to the reference station on the basis of said linear combination of Pa and the complete set of 4p pseudo-ranges.

13. (Previously Presented): The method according to preceding claim 3, wherein step b) comprises the following two steps: b1) calculating an approximate relative position Pa of the mobile in relation to the reference station on the basis of the chosen linear combination equation, Pe and a subset of 4p' pseudo-ranges corresponding to p' satellites, where p' is less than p and where the p' satellites chosen from the arrangement of p satellites are those which, taking into account the current geometry of the arrangement, are least sensitive to an error in the estimated position. b2) calculating a precise relative position Pp of the mobile in relation to the reference station on the basis of said linear combination of Pa and the complete set of 4p pseudo-ranges.

14. (Previously Presented): The method according to preceding claim 4, wherein step b) comprises the following two steps: b1) calculating an approximate relative position Pa of the mobile in relation to the reference station on the basis of the chosen linear combination equation, Pe and a subset of 4p' pseudo-ranges corresponding to p' satellites, where p' is less than p and where the p' satellites chosen from the arrangement of p satellites are those which, taking into

account the current geometry of the arrangement, are least sensitive to an error in the estimated position. b2) calculating a precise relative position Pp of the mobile in relation to the reference station on the basis of said linear combination of Pa and the complete set of 4p pseudo-ranges.

15. (Previously Presented): The method according to claim 2, wherein the steps b1) and b2) are only carried out for the first linear combination equation in the list, a single step involving the 4p pseudo-ranges being carried out for the other linear combination equations in the list.

16. (Previously Presented): The method according to claim 3, wherein the steps b1) and b2) are only carried out for the first linear combination equation in the list, a single step involving the 4p pseudo-ranges being carried out for the other linear combination equations in the list.

17. (Previously Presented): The method according to claim 4, wherein the steps b1) and b2) are only carried out for the first linear combination equation in the list, a single step involving the 4p pseudo-ranges being carried out for the other linear combination equations in the list.

18. (Previously Presented): The method according to claim 5, wherein the steps b1) and b2) are only carried out for the first linear combination equation in the list, a single step involving the 4p pseudo-ranges being carried out for the other linear combination equations in the list.

19. (previously presented): The method according to claim 2, wherein the 2p pseudo-ranges between the satellites and the reference station are determined by the reference station and sent by radio to the mobile which then comprises reception means to receive these pseudo-ranges and information for dating the measurement of these pseudo-ranges.

20. (previously presented): The method according to claim 3, wherein the 2p pseudo-ranges between the satellites and the reference station are determined by the reference station and

sent by radio to the mobile which then comprises reception means to receive these pseudo-ranges and information for dating the measurement of these pseudo-ranges.